MIDDLE CREEK BRIDGE
Iowa Bridges Recording Project
Spanning Middle Creek at Ventura Road,
1.2 miles North of Rose Hill
Rose Hill Vicinity
Mahaska County
Iowa

HAER No. IA-66

BLACK & WHITE PHOTOGRAPHS

REDUCED COPIES OF MEASURED DRAWINGS

XEROGRAPHIC COPIES OF COLOR TRANSPARENCIES

WRITTEN HISTORICAL & DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

HAER
IOWA
62-ROHI.V,
1-

HISTORIC AMERICAN ENGINEERING RECORD

MIDDLE CREEK BRIDGE

HAER No. IA-66

Location:	Spanning Middle Creek at Ventura Avenue; 1.2 miles north of Rose Hill, Mahaska County, Iowa UTM: 15.544900.4576480 USGS: Rose Hill, Iowa quadrangle (7.5 minute series, 1965)
Date of Construction:	c.1898
Designer:	Thomas Seevers
Fabricator/Contractor:	Seevers Manufacturing Company
Present Owner:	Mahaska County, Iowa
Present Use:	Roadway bridge
Significance:	The Middle Creek Bridge, a 4-panel Pratt pony truss, is one of only four bridges remaining built by Seevers Manufacturing Company, based in Oskaloosa, Iowa. The use of steel pipe for the upper chord was a standard design for the company, which also manufactured steam pipes. This bridge is an excellent example of the company's work, an unusual structural type designed and fabricated by a small-scale Iowa company.
Historian:	Leslie Pitner, August 1995
Project Information:	This document was prepared as a part of the Iowa Historic Bridges Recording Project performed during the summer of 1995 by the Historic American Engineering Record (HAER). The project was sponsored by the Iowa Department of Transportation (IDOT). Preliminary research was performed by Clayton B. Fraser of Fraserdesign, Loveland, Colorado.

Bridge building in the United States during the late nineteenth century was dominated by a few large national and regional companies. Equipped with iron works and armies of agents, these large firms could build hundreds of bridges a year. Within the industry, however, opportunities were open for small companies who focused on local markets. The Middle Creek Bridge is a unique product of one such small scale firm, Seevers Manufacturing, based in Oskaloosa, Iowa.

Iowa is graced with dozens of rivers and streams. While they helped support the state's growth as a premier agricultural producer, they also created the need for thousands of bridges to span the waterways. This need is documented in the endless petitions for bridges presented to the county boards of supervisors who were the primary form of local government in Iowa. It fell to each county to provide its own infrastructure of roads and bridges. Rather than plan for the provision of such roads, the boards responded to citizens' requests for new roads and bridges. Bridge petitions were presented to the board, which would then take the requests under consideration depending on the state of the county Bridge Fund, the size and cost of the bridge, and whether the bridge could be built by county labor or would require an outside bridge contractor. The type of bridges built in any given county depended on finances and the preferences of the board which served. Some counties built relationships with the large Midwest bridge building companies, such as the Wrought Iron Bridge Company, Canton, Ohio, or King Iron Bridge Company, Cleveland, Ohio. Others put out all contracts for bid or established annual contracts with one company.

The bridge building and fabrication industry in the United States grew exponentially during the second half of the nineteenth century. As knowledge of engineering increased, bridge building went from empirical carpenter-built bridges to scientifically designed and calculated truss bridges. The advent of widely available wrought iron accelerated the move away from timber and combination wood and iron bridges to all iron truss bridges. The iron trusses created a business opportunity to design and market these iron bridges to local officials. To fill this need, large national and regional companies were created, such as King Iron, which was building about 250 bridges a year in the 1880s and 90s. Opportunities also abounded, however, for smaller, local businesses to succeed.

One such businessman was Thomas Seevers of Oskaloosa, Mahaska County. The Middle Creek Bridge is one of only four remaining bridges built by Seevers. His company, Seevers Manufacturing, which began as a foundry producing steam pipes, had great success building bridges. Bridge building was a particularly auspicious

business in Mahaska County. Five creeks or rivers cross the county - North Skunk River, Middle Creek, South Skunk River, Muchakinock Creek, and the Des Moines River. As stated in the 1878 county history: "Few counties have been called upon for larger expenditure for bridges than Mahaska. Crossed as the county is by three large streams and a number of smaller ones, the expense of building and maintaining bridges has been considerable."[1] Seevers Manufacturing stepped in to fill this need in the 1890s.

Thomas Seevers was a member of one of Oskaloosa's most prominent families, the son of one of the original settlers of the county. In 1842, the U.S. Government bought the territory of Iowa from the Sauk and Fox tribes, of which Mahaska County was a part, which the Indians were to vacate in May of 1843.[2] In 1844, the Territorial Legislature passed the organization for Mahaska and other counties, and in the same year, the County Commissioners laid out the county seat of Oskaloosa.[3] In 1843, three Seevers families settled in Oskaloosa. Newton and James Seevers were brothers who moved to Iowa from Virginia. Their cousin James, from Ohio, joined them later that year. These three families produced some of the most prominent men in Oskaloosa.[4] W.H. Seevers, a cousin of Thomas, was a member of the state legislature and served on the Supreme Court of Iowa. Byron Seevers, another cousin, was a lawyer and mayor of Oskaloosa at the turn of the century.[5]

Thomas Seevers was born in 1848, the son of Newton Seevers. In 1867, he bought out a local foundry which served as the basis for his company. By the mid-1890s, bridge building had become the most profitable part of the business, which also included boilers

---

[1]The History of Mahaska County, its cities, towns, etc., (Des Moines: Union Historical Company, 1878), 311.

[2]Leland L. Sage, A History of Iowa. (Ames, Iowa: The Iowa State University Press, 1974), 72-3.

[3]The History of Mahaska County, 2-3.

[4]Semira Phillips, Proud Mahaska, 1843-1900 (Oskaloosa, Iowa: Herald Printers, 1900), 123-4.

[5]Manoah Hedge, Past and Present of Mahaska County, (Chicago: The S.J. Clarke Publishing Co., 1906), 337.

and steam and hot water heaters.[6] Most of Seevers' bridge business came from Mahaska County. During the 1890s, Seevers Manufacturing had yearly contracts to provide all the "iron" bridges under 64 feet for the county. These contracts paid Seevers by the lineal foot and specified the use of his steel pipes. The pipes that Seevers used to construct his bridges were the same pipes that he manufactured for the steam heaters. Seevers supplied his distinctively designed pipe trusses to the county in the subsequent years until about 1905.[7]

The pipe truss configuration of the Middle Creek Bridge, different from virtually every other bridge type in Iowa, was standard for Seevers. Although they were durable, economical, and structurally sound, Seevers' bridges never found widespread acceptance in the state, and Seevers was never a major player outside of southeastern Iowa. He died in 1910, and the firm was continued by his family until 1923.[8]

THE PIPE TRUSS

The Middle Creek Bridge is 4-panel Pratt pony truss. The truss span is 50', with a wooden approach span bringing the total length to 93', and has a 12'9" roadway width. It is configured in Seevers' typical fashion with steel pipe upper chords and square wrought-iron eyebar lower chords. The diagonals are round iron eyerods. The pipes are joined by cast-iron bearing shoes and hip blocks; the other members are joined using more conventional pinned connections.

While his materials were unique, Seevers used the mainstay truss type of the nineteenth century. Thomas Pratt was the designer of one of the first trusses in America based on scientific analysis. Born in 1812, he studied engineering at Rensselaer Polytechnic Institute in Troy, New York. After graduation, he was hired by the United States Army Engineers to work on the construction of dry docks. After a few years, he began work as a bridge engineer

---

[6]H. Kirk Watkins, ed., Oskaloosa, Mahaska County, Iowa Illustrated 1896, (Oskaloosa: Times Company, 1896), 27; Oskaloosa City Directories: 1892-99, held at the Mahaska County Historical Society, Oskaloosa, Iowa.

[7]Mahaska County Board of Supervisors Minutes, Book 6, 10 (January 18, 1898) and 149 (January 11, 1899); Fraserdesign, MAHA06 "Bridge," Iowa Historic Bridge Inventory, prepared for the Iowa Department of Transportation, 1993.

[8]Oskaloosa City Directories: 1882-1931.

for the railroad.[9] Pratt received a patent with his father Caleb Pratt on a truss in 1844. It was designed to have parallel chords, with the verticals, upper chord, and end posts in compression, and the bottom chord and diagonals in tension. The parallel chords and equal panel lengths allowed for standardized lengths for the vertical, diagonals, and chord members, making the truss efficient to construct and manufacture.[10] The Pratt truss was the most widely used truss in Iowa during the boom of bridge building which took place in the last decades of the nineteenth century.

Joining the Pratt truss type with Seevers' steel pipes made for an extremely efficient structure. The pipe configuration works well, as a cylinder is the most efficient shape under buckling, a phenomenon related to high compressive force. In a Pratt truss, the upper chord is subject to compression, while the lower chord experiences tension. This bridge is technologically significant as a well-preserved example of an unusual, but effective, structure, designed and fabricated by a small-scale Iowa company.

---

[9]Carl W. Condit, American Building Art: The Nineteenth Century, (New York: Oxford University Press, 1960), 109-10.

[10]Condit, 111.

SOURCES CONSULTED

Condit, Carl W. American Building Art: The Nineteenth Century. New York: Oxford University Press, 1960.

Iowa Historic Bridge Inventory, vol. 2. MAHA06, Bridge. Loveland, Colorado: FRASERdesign, produced for the Iowa Department of Transportation, 1986.

Hedge, Manoah. Past and Present of Mahaska County. Chicago: The S.J. Clarke Publishing Co., 1906.

The History of Mahaska County, its cities, towns, etc. Des Moines: Union Historical Company, 1878.

Mahaska County Board of Supervisors Minutes, Book 6, at Mahaska County Courthouse, Oskaloosa, Iowa.

Oskaloosa City Directory: 1882-1931, held at Mahaska County Historical Society, Oskaloosa, Iowa.

Phillips, Semira. Proud Mahaska, 1843-1900. Oskaloosa, Iowa: Herald Printers, 1900.

Sage, Leland L. A History of Iowa. Ames, Iowa: The Iowa State University Press, 1974.

Watkins, H. Kirk, ed. Oskaloosa, Mahaska County, Iowa, Illustrated 1896. Oskaloosa: The Times Company, 1896.

ADDENDUM TO
MIDDLE CREEK BRIDGE
Iowa Historic Bridges Recording Project
Spanning Middle Creek at Ventura Road
Rose Hill vic.
Mahaska County
Iowa

HABR No. IA-66

HAER
IOWA
62-ROHI.V,
1-

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
1849 C Street, NW
Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD

MIDDLE CREEK BRIDGE

This appendix is an addendum to a 6-page report previously transmitted to the Library of Congress.

APPENDIX: ADDITIONAL REFERENCES

Interested readers may consult the Historical Overview of Iowa Bridges, HAER No. IA-88: "This historical overview of bridges in Iowa was prepared as part of Iowa Historic Bridges Recording Project - I and II, conducted during the summers of 1995 and 1996 by the Historic American Engineering Record (HAER). The purpose of the overview was to provide a unified historical context for the bridges involved in the recording projects."